BELL SYSTEM PRACTICES
Outside Plant Construction and Maintenance

SECTION G32.129.1
Issue 1, January, 1952
AT&T Co Standard

DROP AND BLOCK WIRING
DROPS FROM OPEN WIRE LINES

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1. GENERAL

1.01 This section replaces G32.129 Issue 1. It covers methods of running drops from and making connections to open wire.

1.02 This section is issued to cover the wiring of wire terminals installed on DE crossarms equipped with back braces and on poles where open wires are terminated on dead end brackets attached to the poles.

2. DISTRIBUTING DROPS FROM OPEN WIRE LINES

2.01 **Distribute drops from a Drive Hook in the pole** if climbing space, joint use and ground clearances permit, and there is adequate clearance between the drops and existing or future open wires. Otherwise distribute drops from crossarms as outlined in Paragraph 2.02.

2.02 **Distribute drops from crossarms** as follows:

(a) **Crossarms other than DE Type:** Distribute from a Drop Wire Hook where not more than two drops will be run from the same point on the crossarm. Distribute from a Guard Arm Hook where more than two drops will be run. Not more than five drops shall be attached to one Guard Arm Hook.

(b) **DE Crossarm:** Distribute drops from Drop Wire Hooks attached to the sides of the crossarm.

3. INSTALLING DROP WIRE AND GUARD ARM HOOKS ON CROSSARMS

3.01 **Attach Drop Wire Hook to crossarm** with a 1-1/2 in. No. 18 R. H. Galv. Wood Screw. On a crossarm equipped with insulator pins, center the hook on side of crossarm and between pins as covered in Paragraph 4.10 or closer to the pole if adequate clearances can be obtained and climbing space is not obstructed. On a crossarm on which the open wires are terminated on dead end brackets, locate the hook midway between the two outer bracket positions and 1-1/8 in. above bottom of crossarm. Shift location of hook as necessary to avoid checks or cracks in crossarm. Drill lead hole for the No. 18 Wood Screw with a 11/64 in. Drill Point.

3.02 **Place Guard Arm Hook** in a 9/16 in. or 5/8 in. clearance hole drilled in the side of the crossarm (3-1/4 in. thick). Center the hole between top and bottom of the arm and between pins or closer to the pole if adequate clearances can be obtained and climbing space is not obstructed.

4. WIRING AT CROSSARMS AND POLES

General

4.01 Terminate parallel drop wire at a 101A Wire Terminal and run twisted pair wire between the terminal and the open wire. Follow this method when making new installations, reinstallations, rearrangements and repairs.

4.02 If the drop is run with HD Wire, the 101A Wire Terminal is not required, as this wire may be connected directly to the open wire.

4.03 **Locate 101A terminal** on pole side of crossarm with lower edge 3/4 inch above bottom of crossarm. Locate the first terminal to be placed between the first and second wires from the pole in order that it will be readily accessible. Space additional terminals 2-1/2 inches apart on DE Crossarms and 3-1/2 inches apart on other crossarms.

Note: To avoid splicing out parallel drop wires installed prior to placing the 101A terminal, the terminal may be located between any pin positions.

4.04 The binding posts of the 101A terminal will accommodate two parallel drop wires and the twisted pair wire used for bridling to the open wire.

4.05 **Terminate twisted pair wire** under the bottom washers on the binding posts and the first parallel drop wire between the bottom washers and the middle washers. When bridging a second parallel drop wire, enter same hole as first drop and terminate the conductors between the middle and the top washers.

4.06 **If three or four drop wires are to be bridged** to the same open wire, install two 101A terminals and bridle from each terminal to separate bridging connectors or bridging sleeves spaced approximately 2 inches apart on the open wire.

4.07 **Install 5/8 inch Drive Rings** on underside of crossarm near the point where the drop is attached and at points where wires extend to the open wire and 101A terminals. Install additional rings as required to limit ring spacings to approximately 20 inches.

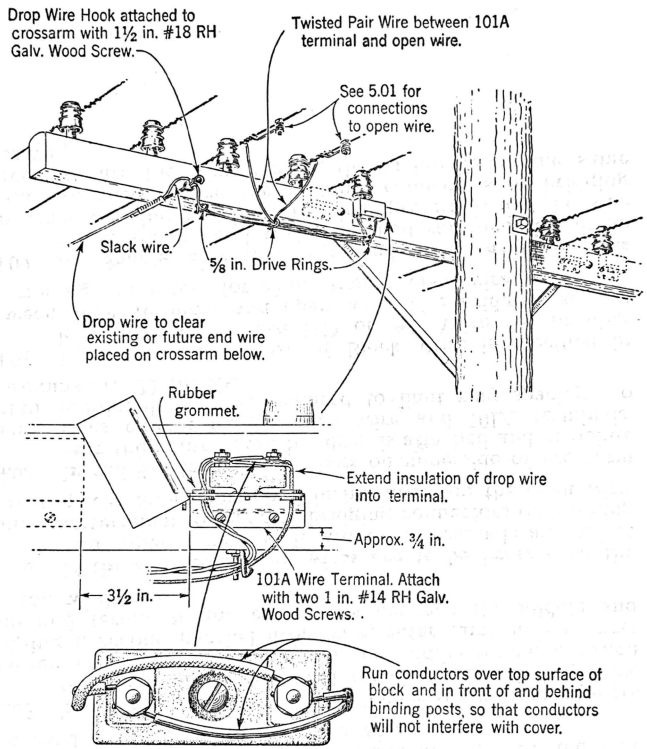
4.08 Except where the use of Block Wire is specified in local instructions use HD or AL Wire for bridling between 101A terminal and open wire. Use bridging sleeves or bridging connectors for connection to open wire.

4.09 **At double crossarms equipped with insulator pins** follow the general wiring method specified for single crossarms, locating the 101A terminal preferably on the side of the crossarm toward the bridging connectors or bridging sleeves. Locate the wire run on the underside of the same crossarm.

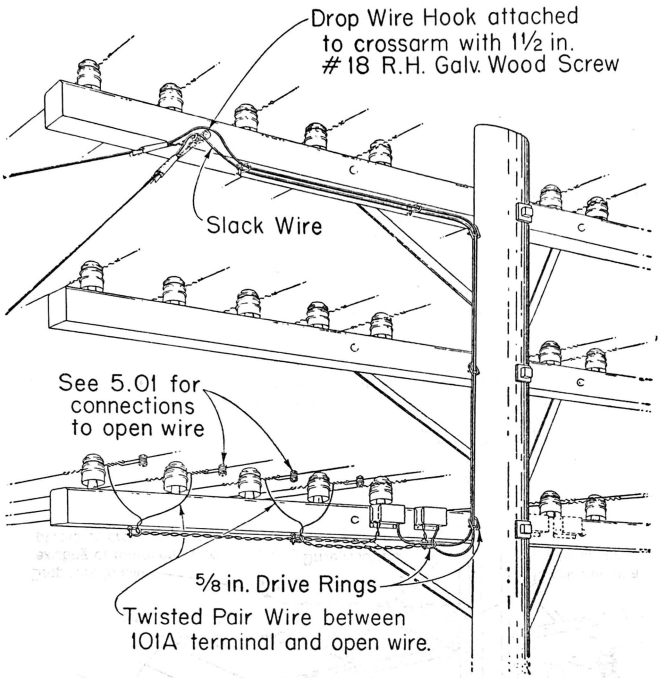
Crossarms Equipped with Insulator Pins

4.10 The wiring arrangement on crossarms equipped with insulator pins is illustrated below.

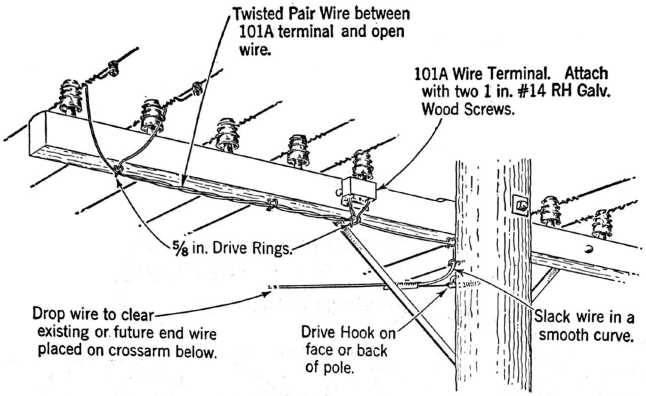
(a) Where drop wire is distributed from crossarms other than DE type.



(b) Where drop is distributed from a higher crossarm on a pole.

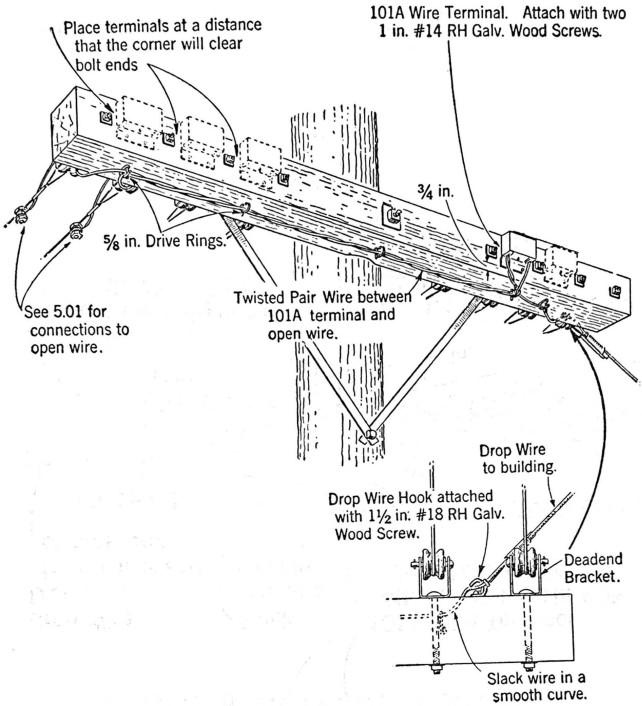


(c) Where drop is distributed from a pole.



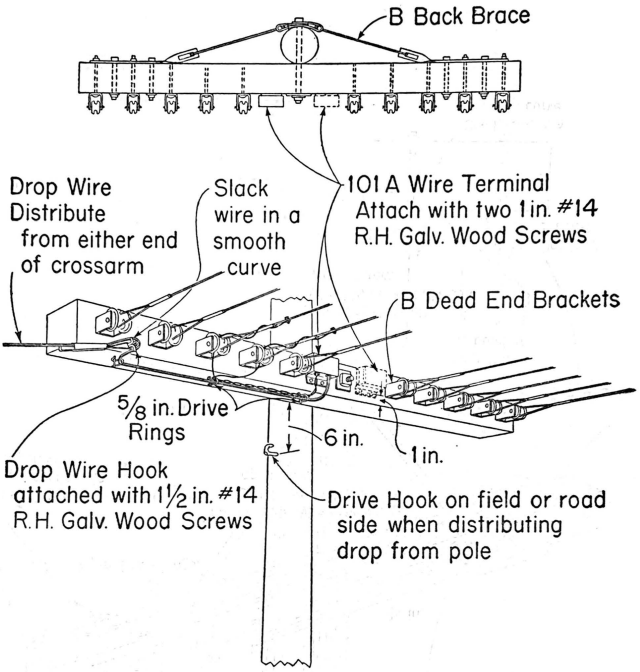
Crossarms Equipped with Dead End Brackets

4.11 The wiring arrangement on **DE crossarms not equipped with back braces** is illustrated below.

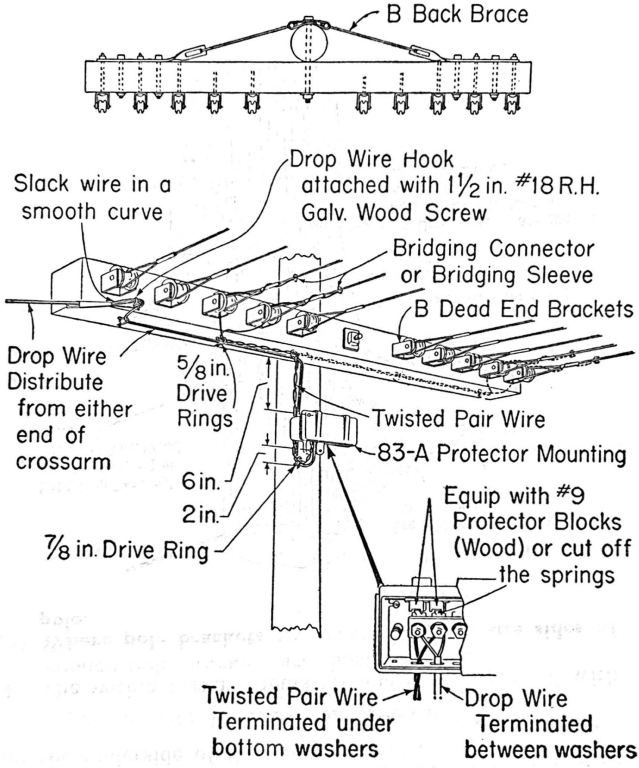


4.12 The wiring arrangement on **DE crossarms equipped with back braces** is illustrated below.

(a) For **not more than 2 drops use 101A wire terminals** placed on the line wire side of the crossarm.



(b) For **more than 2 drops use an 83A protector mounting** without carbon blocks as a wire terminal. Locate it on the pole about 6 inches below the crossarm. Equip the 83A mounting with #9 Protector Blocks (wood dummy blocks) or cut off the mounting springs to eliminate possible grounding of the binding posts to the housing.

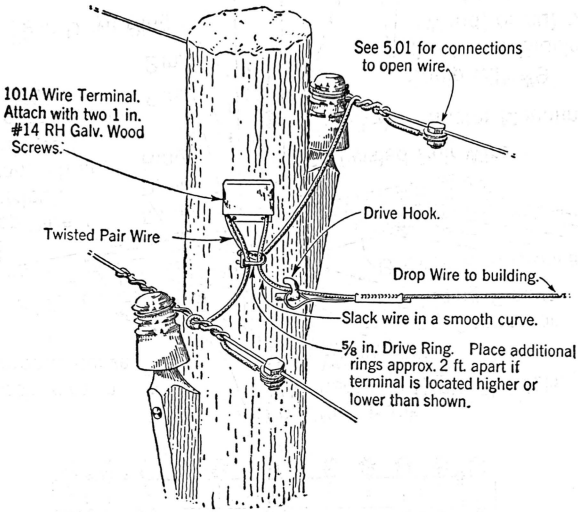


4.13 **At double crossarms equipped with Dead End Brackets** follow the general wiring method shown in Paragraph 4.11, locating the 101A terminal on the outer side of the crossarm not equipped with Dead End Brackets. Locate the wire run on the underside of the same crossarm.

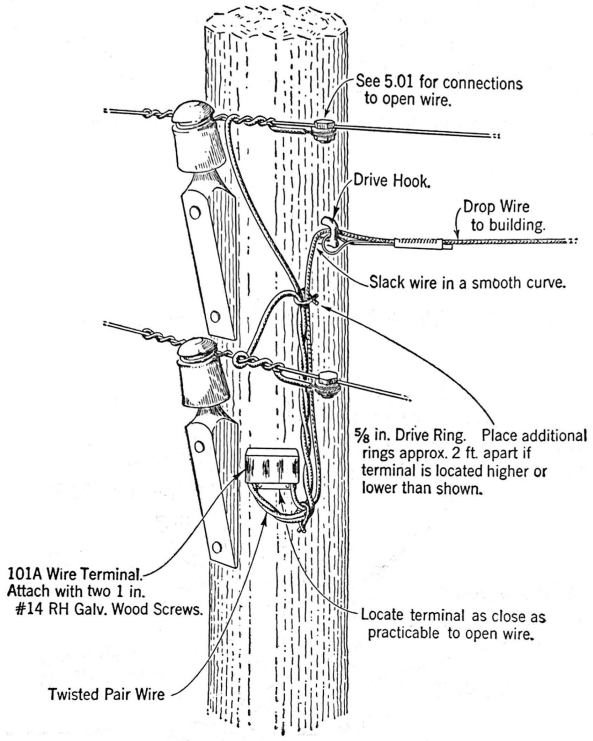
Poles Equipped with Wooden Pole Brackets

4.14 The wiring arrangements on line poles equipped with wooden pole brackets are illustrated below.

(a) **Where pole brackets are located on opposite sides of pole.**



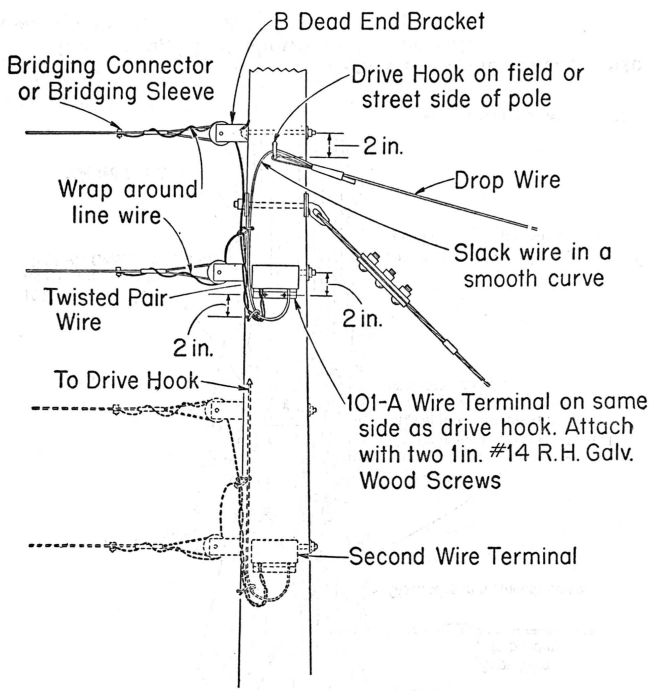
(b) Where pole brackets are located on same side of pole.



(c) Where line wires are dead-ended on pole brackets use the arrangement shown in (a) or (b).

Poles Equipped with Dead End Brackets

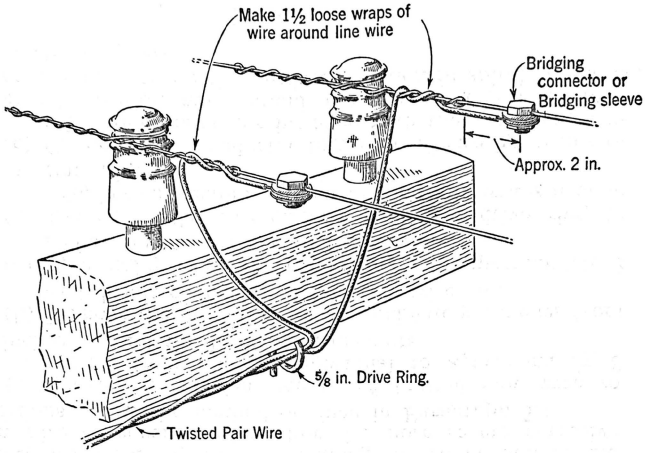
4.15 Where line wires are terminated on dead end brackets attached to the face or back of a pole.



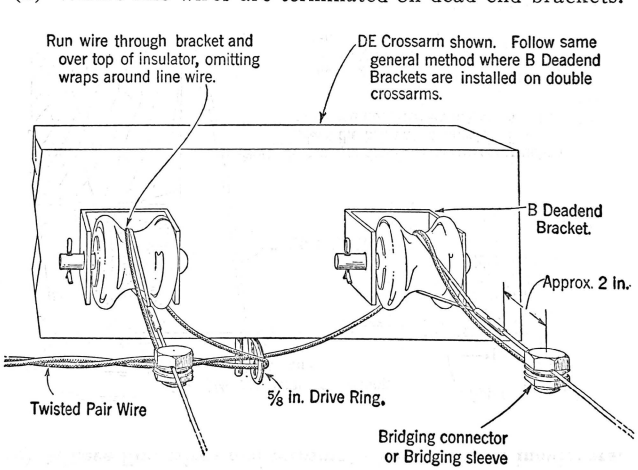
5. CONNECTING TWISTED PAIR WIRE TO OPEN WIRE

5.01 **In general, connect twisted pair wire to open wire** attached to glass insulators or dead end brackets as illustrated below. In localities where corrosion of the bridle wire occurs adjacent to the bridging connector, connect to open wire as covered in Paragraph 5.02 or 5.03, depending on the severity of corrosion, unless otherwise specified.

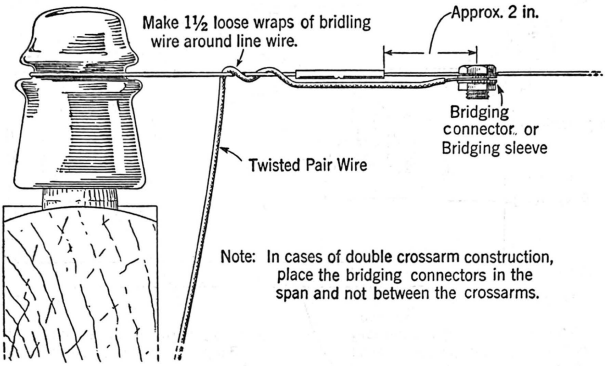
(a) Where line wires are tied to pin type insulators.



(b) Where line wires are terminated on dead end brackets.



(c) **Where line wires are terminated on pin type insulators.**



5.02 **Where corrosion of the bridle wire occurs between the end of the conductor insulation and the bridging connector,** provide a "by pass" in making the connection to the open wire as covered below. For the more severe corrosive conditions follow the method outlined in Paragraph 5.03.

(a) Provide a sufficient length of twisted pair wire to extend from the 101A terminal to approximately 8 inches beyond the bridging connectors.

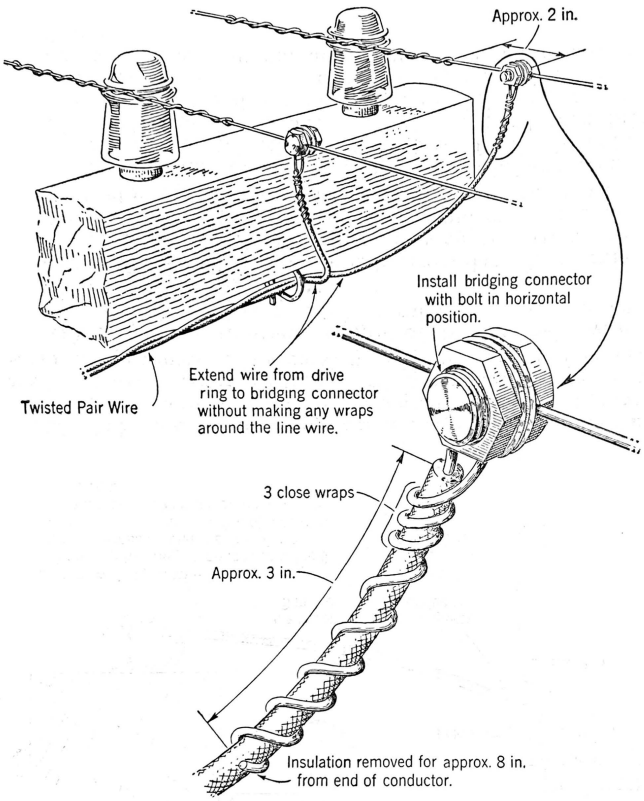
(b) Remove the insulation for approximately 8 inches from each bridle conductor at the open wire end.

(c) Thoroughly clean the conductors for approximately 2 inches beyond the end of the insulation.

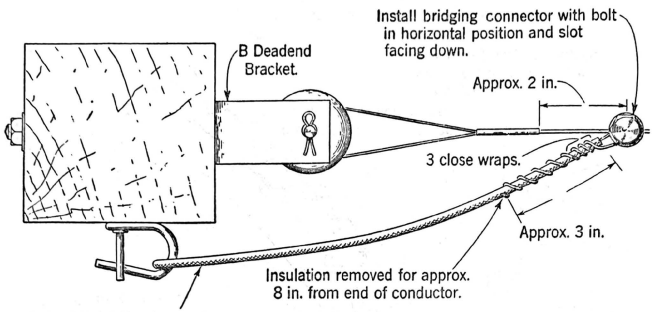
(d) Extend bridle wire directly from last drive ring to bridging connectors without making any wraps around the line wire.

(e) Connect each conductor to the open wire by means of a bridging connector installed with the bolt in a horizontal position and extend the excess length of bare conductor back on the insulated portion in spiral wraps as illustrated below.

(1) Where line wires are tied to pin type insulators.



(2) Where line wires are terminated on Dead End Brackets.



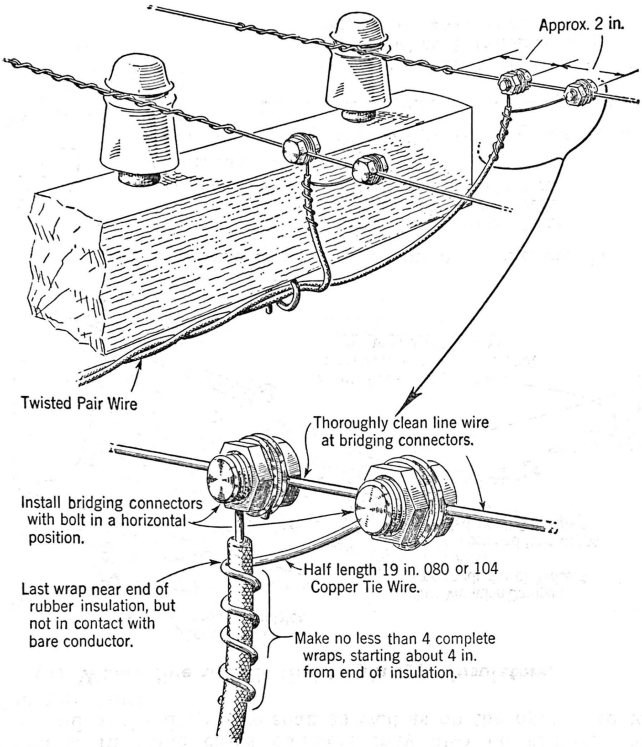
5.03 **Where exposure conditions are so severe that the "by-pass" method covered in Paragraph 5.02 does not provide sufficient permanence** because of rapid corrosion of the spiral wrap, a more durable "by pass" may be provided as follows:

(a) Provide a sufficient length of twisted pair wire to extend from the 101A terminal to the bridging connectors.

(b) Extend bridle wire directly from last drive ring to bridging connectors without making any wraps around the line wire, and connect each conductor to bridging connector installed with the bolt in a horizontal position.

(c) Starting approximately 4 inches from bridging connector, make at least 4 spiral wraps of a half-length of 19-inch 080 or 104 Copper Tie Wire around each bridle conductor in the direction toward the bridging connector. The last wrap shall be close to the end of the rubber insulation but shall not make contact with the bare conductor.

(d) Extend tie wire to an additional bridging connector as illustrated below.



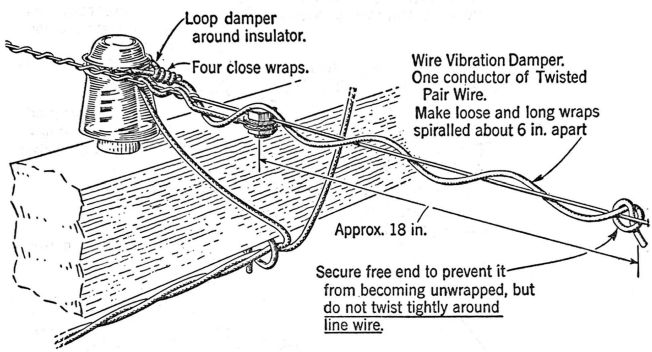
5.04 Where corrosion of bridle wire occurs between end of conductor insulation and a bridging sleeve, provide a by-pass in the manner described in Paragraph 5.03 using a bridging connector for attaching the tie wire to the line wire.

5.05 **Connect bridle wire to tree wire,** using one of the methods covered for bare line wire, depending on the exposure conditions involved. Remove sufficient insulation from the tree wire to permit making the connection as specified for bare line wire.

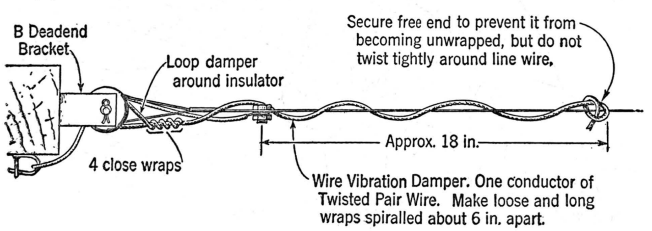
6. INSTALLATION OF WIRE VIBRATION DAMPER

6.01 Where open wires vibrate to such an extent as to cause breakage of twisted pair wires at bridging connectors or to produce a vibration noise at a building to which a drop from line wire is attached, place a vibration damper as illustrated below on each conductor of the open wire circuit at both ends of the span of wire to which the twisted pair wire is connected. Vibration noise at a building may be due to a taut drop wire or a loose glass insulator or a loose open wire tie, in which case it may not be necessary to place dampers. In some cases dampers may also be required at each end of the drop wire span as well as on the open wire to eliminate noise.

(a) **Where line wire is tied to pin type insulators.**



(b) **Where line wire is terminated on dead end bracket.**



(c) **Where line wire is terminated on pin type insulators:** Same as in (a).